**Ecosystems and Communities Objectives:**

1. Be able to identify the three climate zones of Earth.

2. Explain how latitude affects climate.

3. Differentiate between weather and climate.

4. Analyze ocean current and global wind maps.

5. Distinguish between biotic and abiotic factors of a given ecosystem.

6. Differentiate between primary and secondary succession.

7. Distinguish between a niche and a habitat.

8. Explain 3 common types of organism interactions than can be found in any ecosystem.

9. Recognize characteristics of the major biomes of Earth.

10. Distinguish the different areas of a marine ecosystem from diagram.

11. Compare similarities between salt marshes and mangrove forests.

12. Define the Greenhouse effect.

13. Classify the types of plankton found in standing water ecosystems.

14. Be able to recognize the competitive exclusion principle within an ecosystem.

**Ecosystems and Communities Exam**

You will have approximately 50 minutes to complete this exam. If you have any questions stay in your seat and raise your hand. Please keep your eyes on your own paper; if you are caught cheating you will receive a zero on this exam.

**Section 1: Multiple choice**- Read each question carefully and then select the best answer. There is only one correct answer for each question. (2 pts each)

1. In a forest ecosystem, a population of blue jays is considered to be what type of ecological factor? (**Objective 5, comprehension)**

A. Abiotic **B. Biotic**

C. Predatory D. Pioneer

2. After a catastrophic event where the soil is replaced by ash and rocks (such as in a volcanic eruption), an ecosystem will experience which type of succession? (**6, comprehension)**

A. Secondary B. Evolutionary

**B. Primary** D. Destructive

3. While studying various warbler species living within a single tree, you notice that no two species feed in the same area of the tree. This is an example of… (**7** and 14**, analysis)**

A. The competitive exclusion principle B. Individualized niches

C. Species feeding preference **D. Both A and B**

4. The day to day fluctuations in the conditions of Earth’s atmosphere at a specific time and place is referred to as the \_\_\_\_\_\_\_\_\_\_\_\_, whereas the average conditions year after year are known as the \_\_\_\_\_\_\_\_\_\_\_\_\_. (**3, knowledge)**

A. Climate, Weather B. Temperate, Zone

C. Warming, Cooling **D. Weather, Climate**

5. The retention of heat in the atmosphere by the gases methane and carbon dioxide is known as the… (**12, knowledge)**

A. Aurora borealis affect B. Smokers effect

**C. Greenhouse effect** D. Catastrophic effect

6. Which of the following is **NOT** one of the three main climate zones on Earth?

**(1, knowledge)**

A. Tropical B. Temperate

C. Polar **D. Temporal**

7. A prairie within Illinois is burned down due to a fire caused by lightning. What type of succession will occur within that prairie? (**6, application)**

A. Primary succession B. Tertiary succession

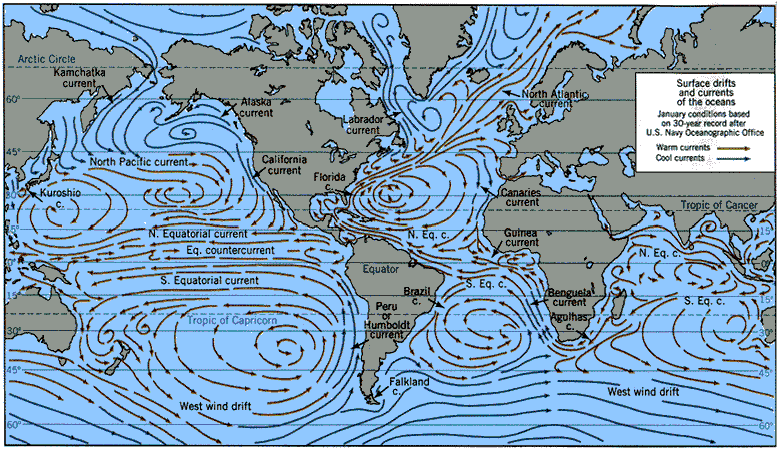
B. Catastrophic succession **D. Secondary succession**

8. Which biome contains the most species than all other biomes combined? (**9, knowledge)**

A. Tropical dry forest **B. Tropical rain forest**

C. Temperate grassland D. Temperate forest

Examine the map below and then answer question #9.



9. Global ocean currents tend to… (**4, analysis)**

A. Flow clockwise in the northern hemisphere

B. Always flow from east to west

C. Flow counter-clockwise in the Southern hemisphere

**D. A and C are both correct**

10. The main difference between an organism’s habitat and its niche is… **(7, comprehension)**

A. Habitat is the role of an organism within an ecosystem.

**B. Niche is the full range of requirements an** **organism needs to survive and**

**reproduce.**

C. Habitat is smaller while a niche is larger.

D. Niche and habitat mean the same thing.

**Section 2- Short Answer**- For each question; please write out your answer using complete sentences. (3 pts each)

11. How does latitude factor into determining the climate of a given area on Earth? (**2, comprehension)**

**The Earth is slightly tilted on its axis. This causes sunlight to strike areas of the Earth at different intensities. For example, when sunlight strikes the equator, it hits almost directly focusing more heat in a smaller area whereas towards the poles the heat energy is spread out over a larger area.**

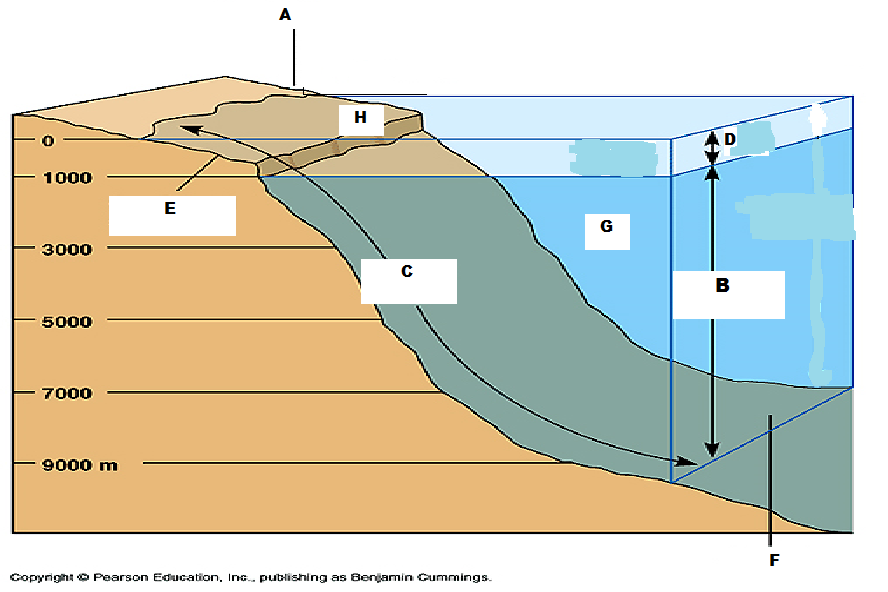
12. What types of plankton would you expect to find in a standing water ecosystem? Explain the differences between them. (**13, comprehension/analysis)**

**The two types of plankton that are found in a standing water ecosystem are phytoplankton and zooplankton. Phytoplanktons are autotrophs who gain their energy through photosynthesis. Zooplanktons are heterotrophic and gain their energy by feeding on other organisms.**

13. What similarities are there between salt marshes and mangrove swamps? (**11, analysis)**

**Both salt marshes and mangroves are coastal wetlands that have sea grasses below their tidal lines. They are valuable in the fact that they both provide breeding grounds for many fish and shellfish**

**Section 3- Matching**: Using the ocean diagram below, match each letter in the diagram with the appropriate feature. Each letter will only be used once. (2 pts each) (**10, application)**



14. Aphotic zone\_\_\_B\_\_\_\_\_\_ 15. Benthic zone\_\_\_\_C\_\_\_\_\_\_

16. Abyssal plain\_\_\_\_\_F\_\_\_\_\_ 17. Intertidal zone\_\_\_\_\_A\_\_\_\_\_

18. Continental shelf\_\_\_\_\_E\_\_\_ 19. Photic zone\_\_\_\_\_D\_\_\_\_\_

20. Costal ocean\_\_\_\_\_\_H\_\_\_\_\_ 21. Open ocean\_\_\_\_\_\_G\_\_\_\_

**Section 4- Essay**: Answer the question below using complete sentences. If you need additional room you may write on the back of this page. (10 pts) (**8, comprehension)**

During this unit we discussed several types of interactions within communities including symbiosis. Define symbiosis and then identify the three types of symbiosis and provide examples for each.

**Symbiosis- This is any relationship between two close living organisms in an ecosystem. The three types of symbiosis include mutualism, commensalism, and parasitism. Mutualism occurs when both organisms benefit from their close living relationship. An example of mutualism would be between ants and aphids. The ants provide protection for the aphids from predators and in return the aphid produces a sweet liquid that the ant will consume.**

**The second type is commensalism. This is where one organism benefits while the other gains no benefit but is not harmed either. An example of commensalism would include barnacles living on whales that benefit from the constant supply of food molecules in the water when the whale swims.**

**The third type is parasitism. In parasitism, one organism benefits greatly while the other one is harmed. The benefitting organism, or parasite, can live inside or on the outside of their host. An example of a parasitic relationship would be between humans and tape worms. Should a human ingest a tape worm, the worm will live within the host’s intestines and absorb nutrients from the digested food rather than them being absorbed by the host’s body.**